

Page 2

USSN 09/875,997

July 22, 2004

---

IN THE CLAIMS

Please amend the claims as indicated hereunder:

1. (Previously Canceled) A composition for degrading biofilm structure associated with cystic fibrosis and the debris associated therewith, the composition comprising:

an enzyme selected for its ability to dismantle the biofilm structure;

an anchor molecule coupled to an enzyme to form an enzyme-anchor complex, the anchor molecule being selected for its ability to attach to a surface on or proximal the biofilm structure;

wherein the attachment to the surface permits prolonged retention time of the enzyme-anchor complex where the biofilm structure and associated debris are present.

2. (Previously amended) A composition as claimed in claim 30 wherein the enzyme of the first enzyme-anchor complex is selected for its ability to degrade a colonizing matrix.

3. (Previously amended) A composition as claimed in claim 30 wherein the first enzyme-anchor complex is a fusion protein.

4. (Previously amended) A composition as claimed in claim

Page 3

USSN 09/875,997

July 22, 2004

---

30 wherein the first enzyme-anchor complex is constructed using chemical synthesis techniques.

5. (Previously amended) A composition as claimed in claim 30 wherein the first enzyme-anchor complex contains alginate lyase to degrade the biofilm structure.

6. (Previously amended) A composition as claimed in claim 30 wherein the first enzyme-anchor complex further contains DNase to degrade debris which are byproducts of the degraded biofilm structure.

7. (Previously amended) A composition as claimed in claim 30 wherein the first enzyme-anchor complex comprises an anchor having an alginate-binding domain.

8. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from elastase.

9. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from a glycosyltransferase enzyme.

10. (Original) A composition as claimed in claim 7 wherein

Page 4

USSN 09/875,997

July 22, 2004

---

the alginate-binding domain is derived from an alginate polymerase enzyme.

11. (Original) A composition as claimed in claim 7 wherein the alginate binding domain is a mannose binding lectin.

12. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from heparin.

13. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from fibronectin.

14. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from Concanavalin A.

15. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from a lectin.

16. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from a selectin.

17. (Original) A composition as claimed in claim 7 wherein the alginate-binding domain is derived from the CD44 protein.

Page 5

USPN 09/875,997

July 22, 2004

18. (Previously Canceled) A composition as claimed in claim 1 further comprising an additional enzyme-anchor complex comprised of an enzyme selected for its ability to act upon debris and byproducts associated with the biofilm structure degradation coupled to an anchor selected for its ability to attach to a surface on or proximal the biofilm structure.

— —

19. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex is a fusion protein.

20. (Previously amended) A composition as claimed in claim 30 wherein the second enzyme-anchor complex is constructed using chemical synthesis techniques.

21. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex comprises an anchor having an alginate-binding domain.

22. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex contains a proteinase.

23. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex has the capability to act on DNA.

Page 6

USSN 09/875,997

July 22, 2004

---

24. (Previously amended) A composition claimed in claim 23 wherein the second enzyme-anchor complex contains DNase.

25. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex contains mucinase.

26. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex is a cell wall degrading enzyme.

27. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex contains a glycosaminoglycan hydrolase.

28. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex contains a peptidoglycan hydrolase.

29. (Previously amended) A composition claimed in claim 30 wherein the second enzyme-anchor complex contains proteoglycan hydrolase.

30. (Currently amended) A two enzyme-anchor complex composition for degrading biofilm structure associated with cystic fibrosis,

Page 7

USSN 09/875,997

July 22, 2004

the composition comprising:

a first enzyme-anchor complex comprising ~~an~~ a first enzyme to dismantle the biofilm structure to produce biofilm components and/or byproducts and an anchor selected for its ability to attach to a surface on or proximal the biofilm structure; and

a second enzyme-anchor complex comprising ~~an~~ a second enzyme different from the first enzyme that has the ability to act upon the biofilm components and/or byproducts and an anchor selected for its ability to attach to a surface on or proximal the biofilm structure.

CONTINUED NEXT PAGE